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AUTHOR Krantz, Patricia J.; Risley, Todd R.
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ABSTRACT

Many investigators have been interested in the development of techniques for remediating undersirable classroom behavior, but far less attention has been paid to physical, spatial and architectural variables which often set the occasion for inappropriate behavior in the classroom. The present study explored the relationships between these ecological variables and kindergarten students' behaviors. One experiment demonstrated that when children's seating arrangements were crowded or when they were required to crowd around a display, their visual attendance to the teacher or to the educational materials was markedly reduced. A second experiment demonstrated that: (1) visual attendance to a teacher reading a story decreases when academic sessions are preceded by active periods and increases when academic session are preceded by inactive periods; (2) transition time from one activity to another increases when preceded by an active session and decreases when preceded by an inactive session; and (3) disruptive behavior during transition increases when preceded by an active session and decreases when preceded by an inactive session. In each of the experiments described above, simple ecological arrangements of the classroom produced an effect comparable to standard behavior modification procedures. (Author)

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THE ORGANIZATION OF GROUP CARE ENVIRONMENTS: BEHAVIORAL ECOLOGY IN THE CLASSROOM[1]

Patricia J. Krantz and Todd R. Risley
University of Kansas

Paper presented at American
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Honolulu, 1972

[1]This is one of a series of studies by the Living Environments Group of the University of Kansas under the direction of Todd R. Risley. This research was supported in part by National Institute of Child Health and Human Development grant HD03144.

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ABSTRACT

Many investigators have been interested in the development of techniques for remediating undesirable classroom behavior, but far less attention has been paid to physical, spatial and architectural variables which often set the occasion for inappropriate behavior in the classroom. The present study explored the relationships between these ecological variables and kindergarten students' behaviors.

One experiment demonstrated that when children's seating arrangements were crowded or when they were required to crowd around a display, their visual attendance to the teacher or to the educational materials was markedly reduced.

A second experiment demonstrated that: 1) visual attendance to a teacher reading a story decreases when academic sessions are preceded by active periods, and increases when academic sessions are preceded by inactive periods; 2) transition time from one activity to another increases when preceded by an active session, and decreases when preceded by an inactive session; 3) disruptive behavior during transition increases when preceded by an active session and decreases when preceded by an inactive session.

In each of the experiments described above, simple ecological arrangements of the classroom produced an effect comparable to standard behavior modification procedures.

The data presented in this paper are part of a series of studies designed to show the relationship between classroom environmental variables and preacademic or social behaviors among kindergarten children. Observations in many kindergartens and interviews with kindergarten teachers were the basis for the choice of behaviors to be measured, as well as the selection of environmental variables to be manipulated. During these preliminary observations and interviews, it became apparent that in many kindergarten classrooms there are particular activities and time periods during each day when teachers consistently have difficulty implementing their programs. It appears that at these times teachers arrange the environment in ineffective ways which, in fact, set the occasion for those behaviors which they least desire. The present research identified and manipulated some of the environmental variables which are associated with these disruptive occasions in the classroom.

SUBJECTS AND SETTING

The subjects of this research were black kindergarten children who attended school in a segregated, low-income

neighborhood. The 5 boys and 3 girls selected for the study were enrolled in supplementary kindergarten sessions which were conducted daily at the research site. The experimental sessions lasted two and one-half hours per day, and simulated typical kindergarten classroom routines.

ECOLOGICAL DEMONSTRATIONS

Spatial Arrangements of Children: Story Period

Most kindergarten teachers who were observed in the natural setting conducted a story or lesson activity by asking the children to come and sit cross-legged and in close physical proximity on the floor in front of her chair. With 20 to 25 children crowded together and competing for limited space, the usual outcome was poking, shoving and failure to attend to the teacher and/or to the presented materials. It appeared that crowded conditions set the occasion for disruptive and inattentive behavior.

In order to test the effect of crowded versus uncrowded seating arrangements during a story period, it was necessary to simulate crowded conditions for the 8 children participating in experimental sessions. To do this, a blanket was folded to 3 feet by 4 feet, and the teacher instructed the children to sit on the blanket instead of

on the larger rug. This seating arrangement required competition for space similar to that seen for larger groups of children. During the uncrowded condition, children were asked to come to the rug and sit on squares of masking tape placed two feet apart.

In order to assure that the spatial dimension was the only difference between the two conditions, these procedures were held constant across both seating arrangements: 1) the children were not arranged in any specific seating sequence; 2) the teacher did not prompt or reinforce attentive behavior nor respond to disruptive behavior and; 3) the same books and reader were used to control for story content and preference.

The data in Figure 1 show the mean on-task behavior during story for both crowded and uncrowded seating conditions.

Observations were made throughout the 15 minute story period, using a procedure of time sampling at a point in time. Every 30 seconds observers swept the 8 children in a predetermined sequence and scored each child as being on-task or off-task at that point in time. On-task was defined as sitting cross-legged, visually attending to the teacher or to the materials presented, and not engaged in any disruptive behavior. The mean percent on-task behavior during crowded conditions was 60 percent, where-

as data taken on alternate days during uncrowded conditions averaged 87 percent. Mean inter-observer agreement on these data was 96 percent. For these and all data presented, inter-observer agreement was scored for each time sample and computed according to the formula:

$$\frac{\text{agreements}}{\text{agreements + disagreements}} \times 100$$

Observations in kindergarten classrooms indicated that project demonstrations were also occasions for crowding children together. Children were typically asked to gather around a low table and to visually attend to the teacher and to the material she was presenting. Again, the children competed for space and for visual access. Thus, an additional experiment was designed to explore the effects of crowding during teacher demonstrations.

In the experimental sessions, crowded conditions with limited visual access were created by instructing children to gather around the teacher while she demonstrated the project for the succeeding table work period.

This spatial arrangement was contrasted on alternate days with an uncrowded condition in which children were seated in a semi-circle and were equidistant from the teacher.

Figure 2 shows mean percent on-task behavior during

teacher demonstration for both crowded and uncrowded conditions. A child was defined as on-task if his head was oriented in the direction of the teacher, if he was standing or sitting in the designated area, and if he was not engaged in any disruptive behavior. The mean percent on-task behavior under crowded conditions was 51 percent, whereas the mean percent on-task behaviors under uncrowded conditions was 90 percent. Inter-observer agreement for these data ranged from 85 to 100 percent with a mean of 94 percent. These data demonstrate a clear relationship between spatial arrangements of children and on-task behavior during teaching sessions.

Sequence of Scheduled Activities

Observations in the natural environment indicated that when kindergarten teachers scheduled a very active session, such as recess, immediately preceding a quiet period, such as story, they were more likely to have difficulty than when this same quiet activity was preceded by a less active session. The activity level of the preceding activity appeared to be related to: 1) the length of time required for the group to make the transition from one activity to the next; 2) the rate of disruptive behaviors occurring during the transition period; and most important, 3) the attentiveness of the children to the educational materials in the quiet activity. Thus, it was hypothesized that the

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activity level which preceded a quiet session such as story would effect transition time to story, disruptive behaviors during transition, and visual attendance during story.

In the experimental setting, the active sessions which preceded story period were dancing, musical chairs, and outdoor play. The inactive sessions which preceded story time were resting with heads on desks.

The data in Figure 3 show the number of seconds it took the children to move from the table area to a seated position on the rug for story, when story was preceded by both active and inactive conditions. The mean number of seconds required for transition was 35 when story was preceded by an active session, whereas the mean number of seconds required for transition was only 21 when story was preceded by an inactive session. Measurement of transition time always began when the first child left the table area, and ended when all children were seated on the rug. Mean inter-observer agreement on these data was 92 percent.

Figure 4 shows the rate per minute of disruptive behaviors during transition periods preceded by active and inactive sessions. The mean rate of disruptive behaviors when transitions were preceded by active sessions was 11.8 per minute; and the mean rate when transitions were preceded by inactive sessions was 1.4 per minute.

As previously stated, visual attendance to the teacher was also related to the activity level of the preceding period. Figure 5 shows the mean percent visual attendance to the teacher and/or the book when story was preceded by active and inactive sessions. The mean percent visual attendance when story was preceded by an active session was 65, whereas the mean percent visual attendance when story was preceded by an inactive session was 86. Thus, it appears that transition times, disruptive behaviors during transitions, and attentiveness to teacher and materials may be manipulated by scheduling of preceding activities. These results suggest that an activity which prohibits children from speaking or from being physically mobile should not be immediately preceded by a session which permits or encourages boisterous large motor behavior. An optimally effective sequency of activities might schedule gross motor activities, to be succeeded by creative play or seatwork sessions which allow some movement and manipulation of materials, followed finally by a quiet session requiring restricted verbal and physical activity.

REMEDIATION IN UNFAVORABLE ENVIRONMENTS

After establishing that there were systematic relationships among these ecological variables and the behaviors of kindergarten children, a series of experiments were

conducted using behavior modification procedures. Descriptive praise and classroom privileges, such as helping the teacher and occupying positions of leadership, were used to improve the children's performance under those conditions which the previous ecological demonstrations had shown to be less desirable or less effective.

A multiple baseline design was employed to demonstrate the effects of descriptive praise and classroom privileges upon on-task behavior under crowded conditions during teacher demonstrations and story. The baseline data displayed in Figure 6 are data that were previously shown in crowded conditions in both activity periods. When descriptive praise and classroom privileges were contingent upon attentive and nondisruptive behaviors, mean percent on-task behavior during teacher demonstration increased from 51 percent during baseline to 93 percent during the reinforcement condition. Mean percent on-task behavior during story increased from 60 percent during baseline to 92 percent during the use of descriptive praise and classroom privileges.

Mean inter-observer agreement for these data is 95 percent. It is interesting to note that the mean percent on-task behavior during these behavior modification interventions is only a few percentage points higher than the level of on-task behavior that was exhibited when children were simply arranged in uncrowded conditions.

Figure 7 represents the data for a second experiment, also a multiple baseline design across activity periods--story and transition to story. This figure shows mean percent visual attendance to story, transition time, and rate of disruptive behaviors during transition when story and transition period were preceded by an active session. Again, the independent variables employed were descriptive praise and classroom privileges. The mean percent visual attendance during story was 65 during baseline and increased to 97 when using descriptive praise and classroom privileges. The transition time during baseline was 35 seconds; this decreased to 8 seconds when descriptive praise and privileges were implemented. The rate of disruptive behaviors during transition decreased from a mean of 11.3 per minute during baseline to 2.1 per minute during reinforcement. Inter-observer agreement on these three sets of data ranged from 84 to 99 percent. Again it is interesting to note that the level of performance during these behavior modification interventions for all three behaviors was similar to that seen when transition and story were simply preceded by an inactive session.

Data from these two experiments indicate that by consequating children's behavior, it is possible to obtain effective performance even in less than optimal environmental conditions; perhaps of greater interest, however,

are the data which indicate that similar behavioral results can be obtained at lower response cost to the teacher, through the introduction of simple effective ecological arrangements in the classroom.

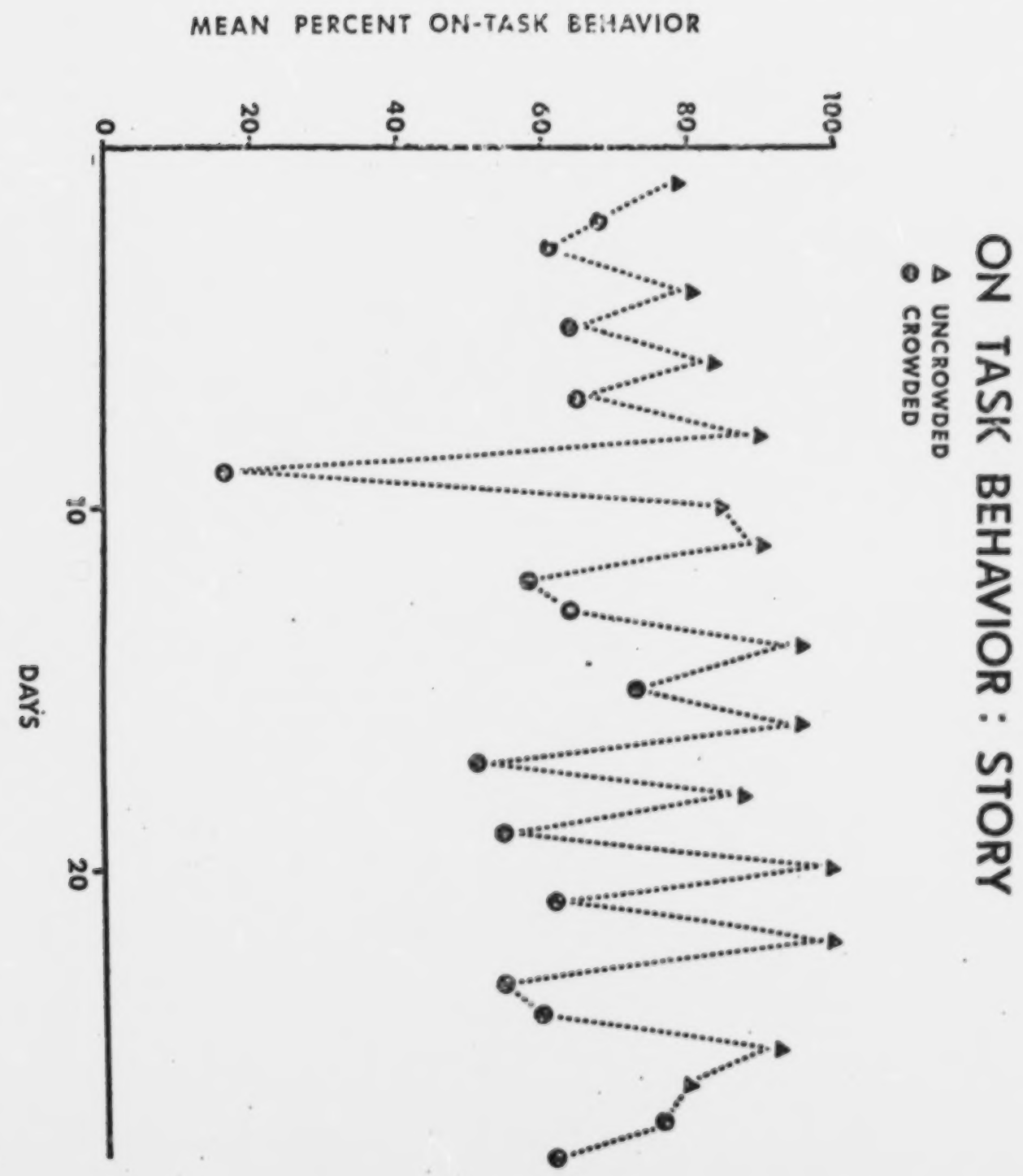


Figure 1. Mean percent on-task behavior during story period when seated under crowded and uncrowded conditions.

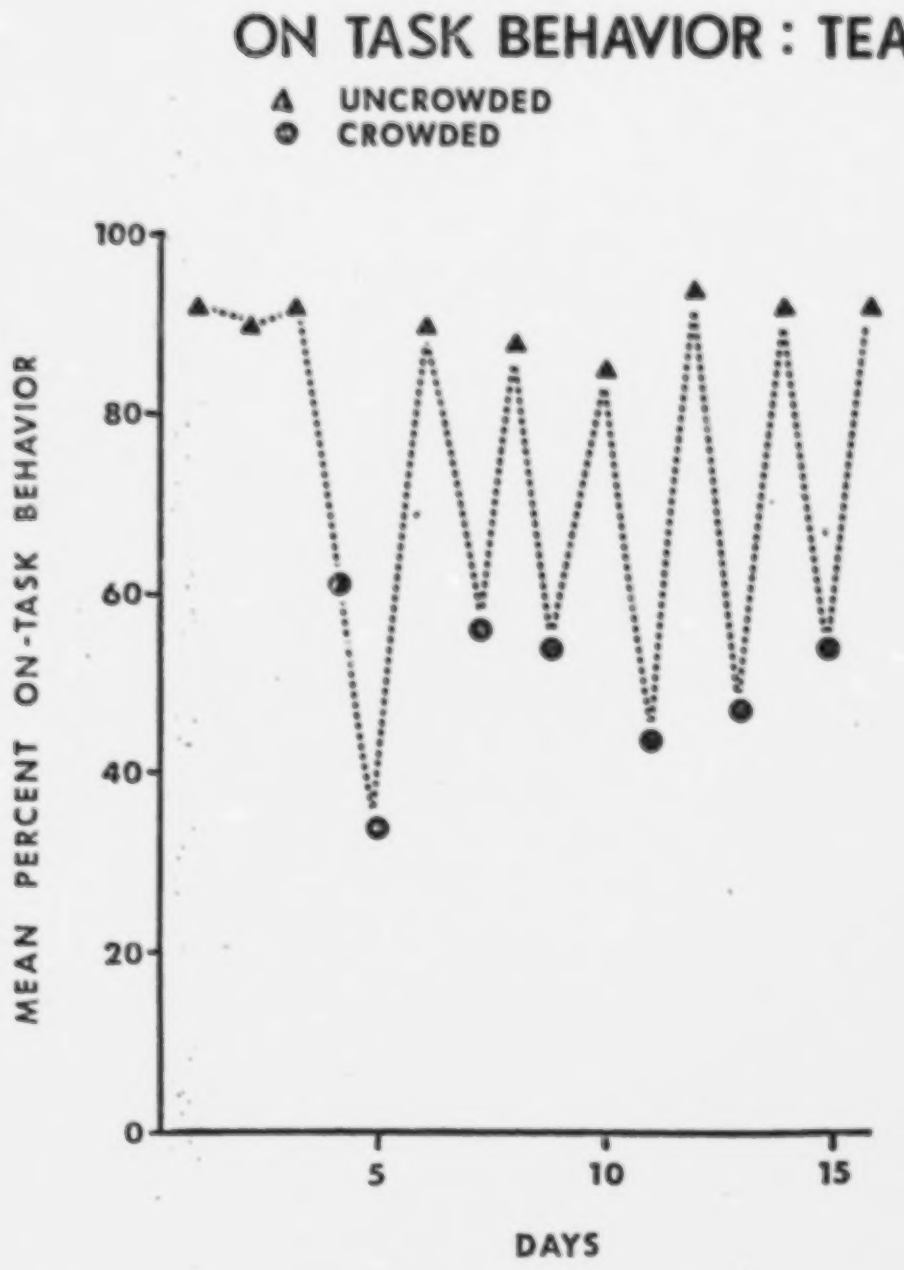


Figure 2. Mean percent on-task behavior during a teacher demonscration session when children are under crowded and uncrowded conditions.

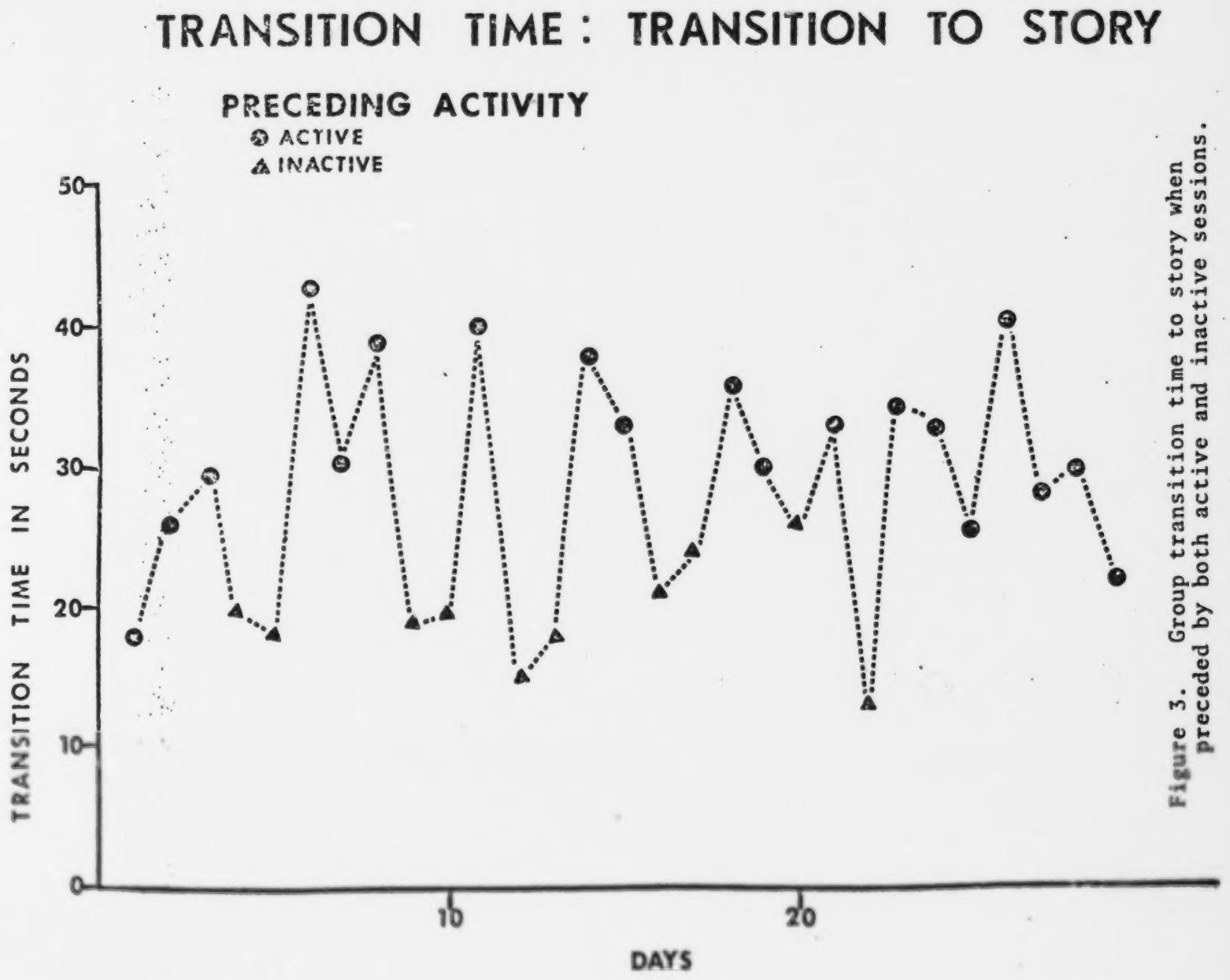


Figure 3. Group transition time to story when preceded by both active and inactive sessions.

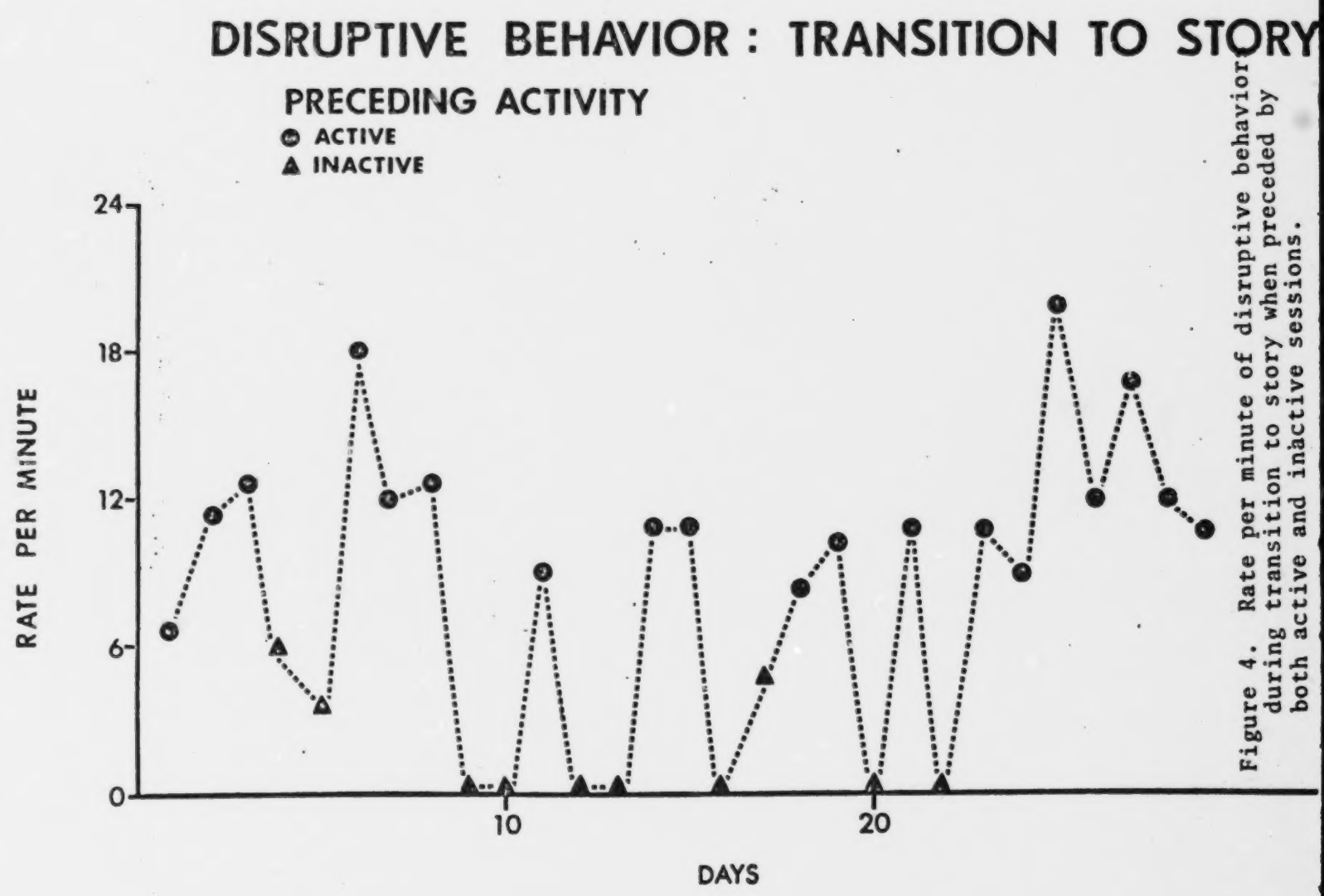


Figure 4. Rate per minute of disruptive behavior during transition to story when preceded by both active and inactive sessions.

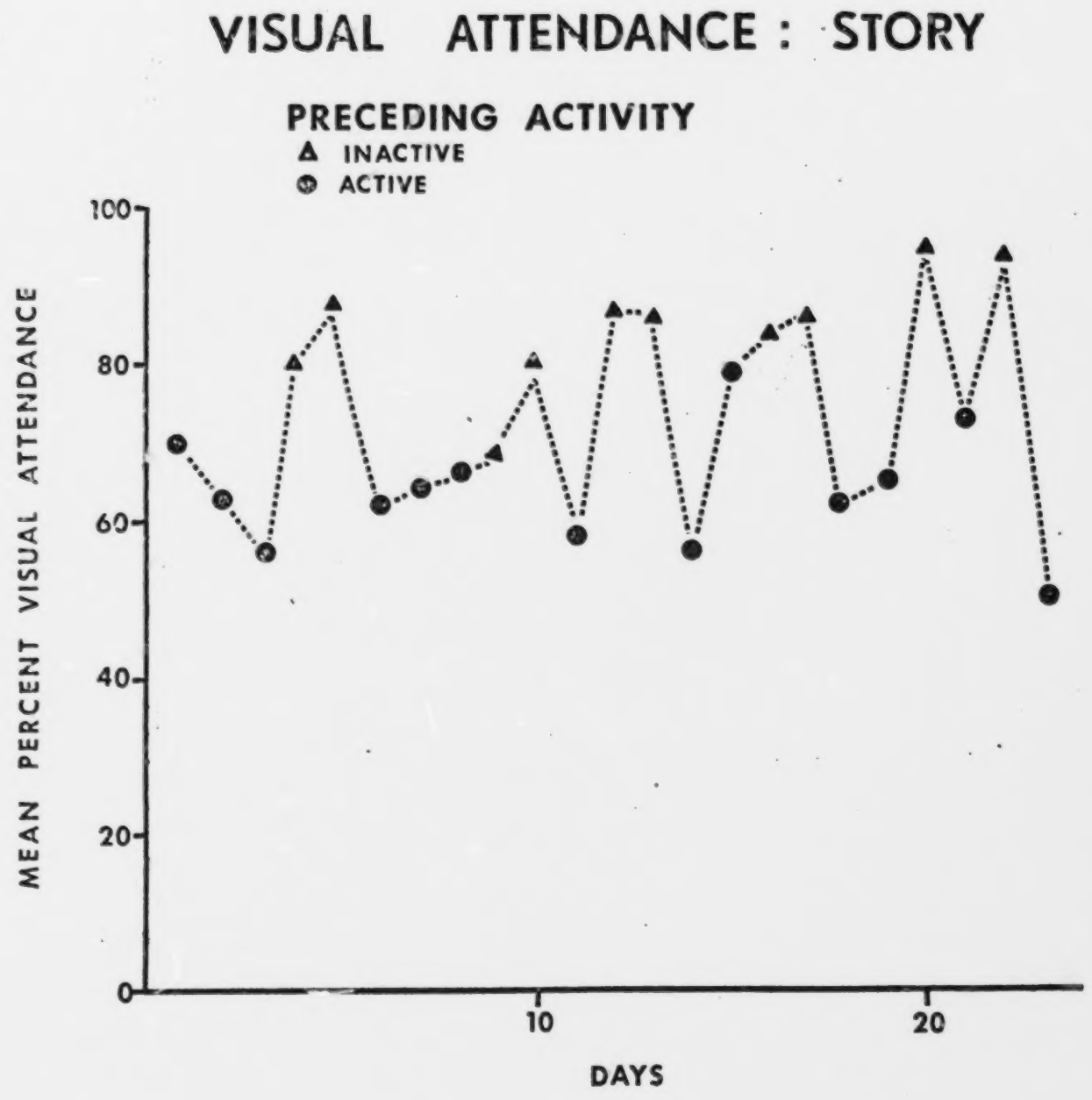


Figure 5. Mean percent visual attendance to story when preceded by both active and inactive sessions.

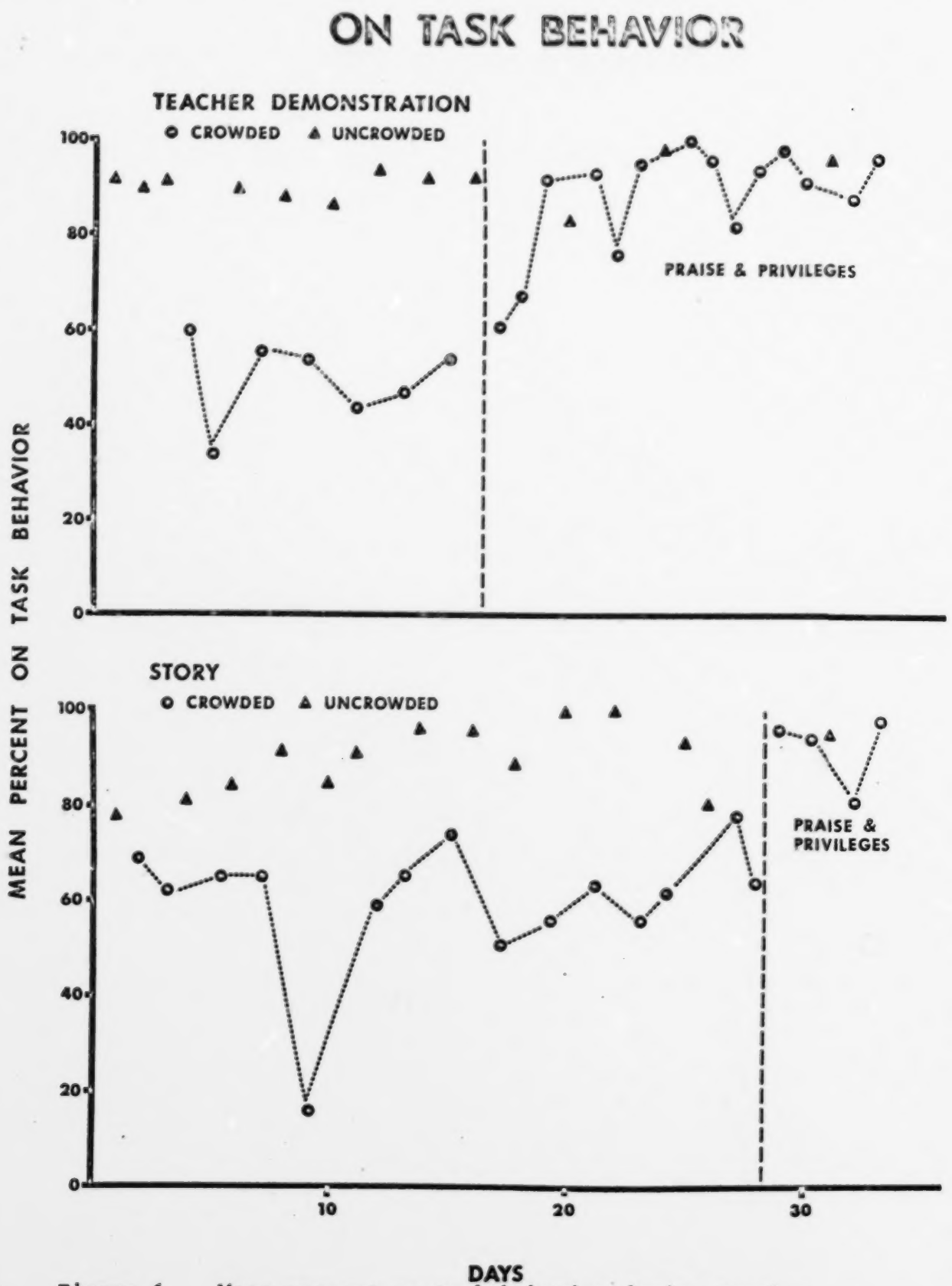
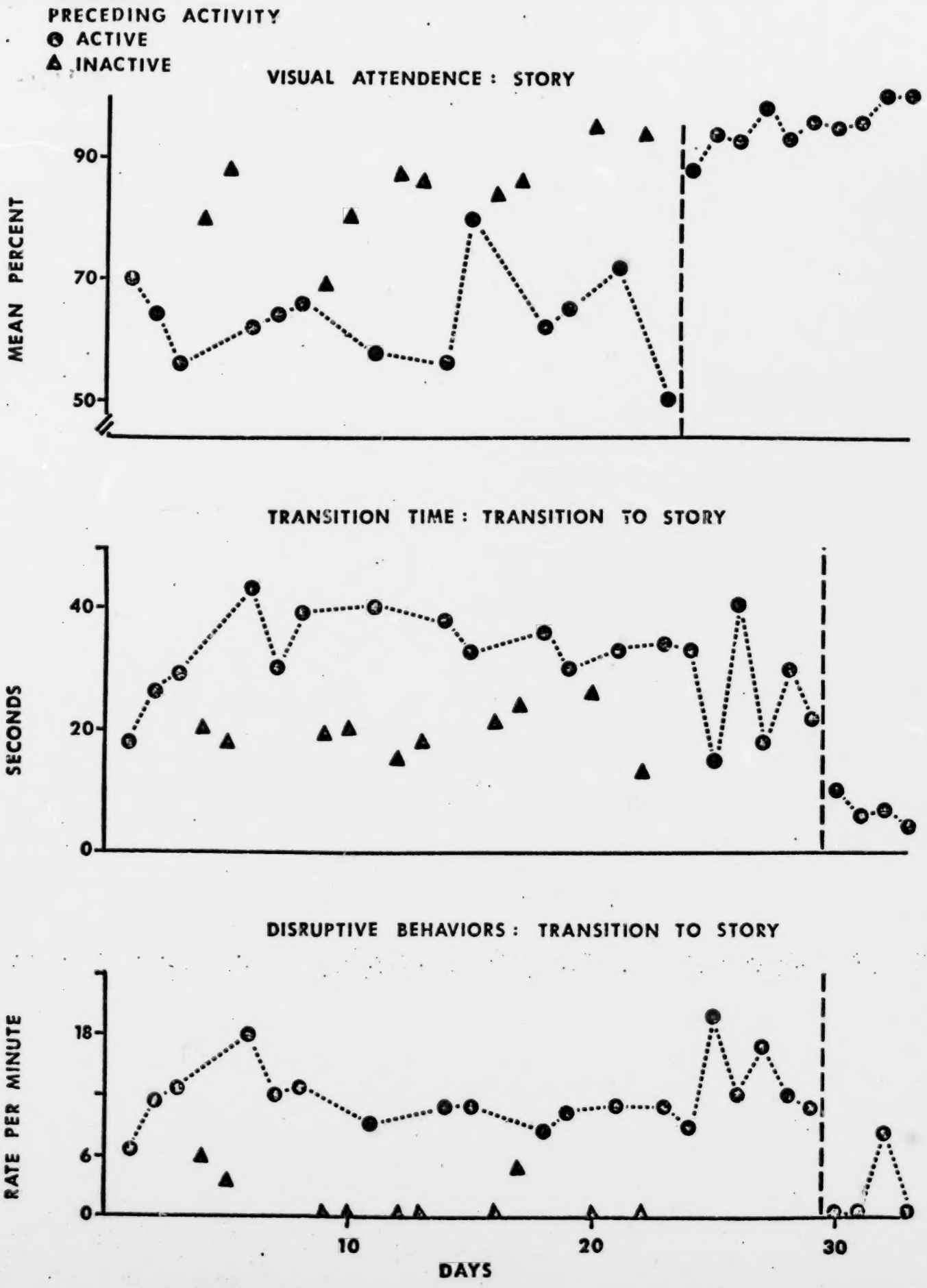


Figure 6. Mean percent on-task behavior during teacher demonstration and story. In each case on-task behavior increased following introduction of descriptive praise and classroom privileges. Crowded conditions were maintained in all phases of both experiments.

Figure 7. Multiple baseline across three behaviors: 1) visual attendance during story, 2) transition time to story, 3) disruptive behavior during transition to story when each was preceded by an active session. Introduction of descriptive praise and classroom privileges produced increases in visual attendance and decreases in transition time and disruptive behavior.


PRECEDING ACTIVITY
ACTIVE
INACTIVE
VISUAL ATTENDENCE : STORY
MEAN PERCENT
90
70
50
TRANSITION TIME : TRANSITION TO STORY
SECONDS
40
20
0
DISRUPTIVE BEHAVIORS : TRANSITION TO STORY
RATE PER MINUTE
18
6
0
10
20
30
DAYS